

What is claimed is:

Please cancel claims 1-25 and add new claims 26-49 as follows:

26. (New) A method for the desulphurization of the circulation of chemicals in a sulphate pulp mill, comprising collecting concentrated odorous gases that contain sulphur compounds and combusting them to oxidize the sulphur compounds, wherein the concentrated odorous gases are combusted at an air index below one in a first combustion unit, using the Claus process so that at least an essential part of the sulphur compounds are oxidized into elemental sulphur, nonetheless so that at least 10 molar % of the sulphur compounds taken through the Claus system are taken to be combusted in the combustion device of the second combustion unit, and the elemental sulphur is recovered in liquid or solid form.

27. (New) The method according to claim 26, wherein the air index of the combustion is about 0.4 – 0.9.

28. (New) The method according to claim 26, wherein the temperature of the combustion is about 1400 to 1800 °C.

29. (New) The method according to claim 26, wherein the desulphurization is integrated into the odorous gas exhaust system of the pulp mill.

30. (New) The method according to claim 26, wherein the sulphur is condensed from the odorous gases after the combustion of the gases.

31. (New) The method according to claim 26, wherein the water of the boiler or cooling water circulation of the pulp mill is used to condense the sulphur.

32. (New) The method according to claim 26, wherein part of the collected odorous gases are conducted to Claus combustion and part of the sulphur compounds from the Claus combustion are conducted to conventional odorous

gas combustion, or optionally part of the collected odorous gases are conducted directly to conventional odorous gas combustion.

33. (New) The method according to claim 26, wherein at least part of the sulphur compounds of the concentrated odorous gases coming from the Claus combustion are conducted to conventional odorous gas combustion.

34. (New) The method according to claim 26, wherein at least 10 molar % of the sulphur compounds from the Claus combustion are conducted to combustion in conventional combustion systems.

35. (New) The method according to claim 26, wherein part of the concentrated odorous gases are lead into a first combustion unit, which comprises one or more Claus system combustion devices and part is lead into the second combustion unit comprising combustion in a soda recovery boiler, odorous gas boiler, lime sludge reburning kiln or flame or into more than one of these systems.

36. (New) The method according to claim 26, wherein at least 10 molar %, preferably 30 to 90 molar %, of the collected odorous gases are conducted into one or more Claus system combustion devices for combustion.

37. (New) The method according to claim 26, wherein the collected odorous gases are combusted in the first combustion unit in the Claus system combustion device and the residual tail gases are conducted to the second combustion unit to be combusted in the soda recovery boiler, odorous gas boiler, lime sludge reburning kiln or flame or in more than one of these systems.

38. (New) The method according to claim 26, wherein 50 to 90 molar %, typically 70 to 85 molar %, of the sulphur of the odorous gases lead into the Claus process are combusted to elemental sulphur.

39. (New) The method according to claim 26, wherein air, oxygen or a mixture thereof is used in the combustion of odorous gases.

40. (New) The method according to claim 26, wherein the elemental sulphur obtained from the Claus process is further combusted to sulphur dioxide or processed to form sulphuric acid.
41. (New) The method according to claim 26, wherein at least part of the elemental sulphur is fed back into the process, for example, by adding sulphur to white liquor or feeding the sulphur into the soda recovery boiler.
42. (New) The method according to claim 26, wherein the odorous gases are collected from the source of concentrated odorous gases of a cooking department or an evaporator plant separately or in combination.
43. (New) The method according to claim 26, wherein the amount of concentrated odorous gases is increased by means of a suitable method, such as thermal treatment of black liquor.
44. (New) A use of the Claus process for the desulphurization of the circulation of chemicals in a sulphate pulp mill, so that the concentrated odorous gases are combusted with substoichiometric amounts of air into elemental sulphur in one or more combustion units of the Claus system and at least 10 molar % of the sulphur compounds taken through the Claus system are taken to be combusted in the combustion device of the at least one second combustion unit.
45. (New) An arrangement for the desulphurization of the circulation of chemicals in a sulphate pulp mill, comprising:
- at least one odorous gas combustion unit, in which the flow of concentrated odorous gases can be collected and into which it can be conducted from a source of concentrated odorous gases and wherein the reduced sulphur contained in the concentrated odorous gases can be combusted, wherein the combustion unit comprises a first combustion unit, which has at least one Claus system combustion device, which is provided with a feed inlet, which is connected to the source of concentrated odorous gases, and with an exhaust outlet, through which

the oxidized and condensed sulphur compounds of the concentrated odorous gases can be removed from the device as elemental sulphur in a liquid or solid form, and a second combustion unit, whereby the first unit has an exhaust nozzle for gaseous, uncondensed sulphur compounds, which is connected to the second combustion unit.

46. (New) The arrangement according to claim 45, wherein the combustion unit comprises at least two Claus system combustion devices connected in series, whereby the first combustion device comprises a combustion assembly for gaseous, uncondensed sulphur compounds, which is connected to the feed nozzles of the second combustion device.

47. (New) The arrangement according to claim 45, wherein the first combustion unit comprises a Claus system combustion device and a condenser therein.

48. (New) The arrangement according to claim 45, wherein the second combustion unit comprises a odorous gas boiler, soda recovery boiler, lime sludge reburning kiln and/or flame.

49. (New) The arrangement according to claim 45, wherein the feed nozzle of the first combustion unit is connected to a distribution piece so that part of the concentrated odorous gases can be lead through the distribution piece and past the first combustion unit into the second combustion unit.